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Favorable reconsideration in light of the amendments and the remarks which follow is respectfully requested.

1. Oath/Declaration

The objection to the verified Statement Claiming Small Entity Status as set forth in the previous Office action (Paper No. 2, page 2) has been repeated. Applicant will submit a new verified Statement Claiming Small Entity Status at a later date.

2. Drawing

The objections to the drawings as set forth in the previous Office action (Paper No. 2, page 2, elements 2 and 4) have been repeated. New drawings to address the objections are being prepared and will be submitted at a later date.

3. 35 U.S.C. §103 Rejection

a. *CLAIMS 1-5, 7 AND 11*

Claims 1-5, 7 and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Jones (U.S. Patent No. 4,929,055) in view of Softly (U.S. Patent No. 4,365,866).

Regarding the Jones reference, the Examiner states that:

[T]he structure concerning the vanes disposed in front of a lens surface having a curved shape for reduction light reflections incident on the lens surface as provided by Jones meets almost all the features recited in the present claims. The only feature missing from the Jones reference is that he does not clearly teach that the first ends of the concentric circular vanes are spaced further apart from each other at a different distance than the second ends of the concentric circular vanes are spaced apart from each other. However, such an arrangement of the vanes as claimed is merely that of a preferred embodiment and no criticality has been disclosed.

Regarding the Softly reference, the Examiner states that:

It is noted that the use of an array of vanes disposed in front of a lens surface having a curved shape for the purpose of reduction light reflections incident on the lens surface wherein the distance between two adjacent first ends near the lens surface of a vane is larger than the distance between two adjacent second ends farther from the lens surface of the vane for the purpose of reduction the light reflection incident on the lens surface is suggested by one skilled in the art as can be seen in the system provided by Softly.

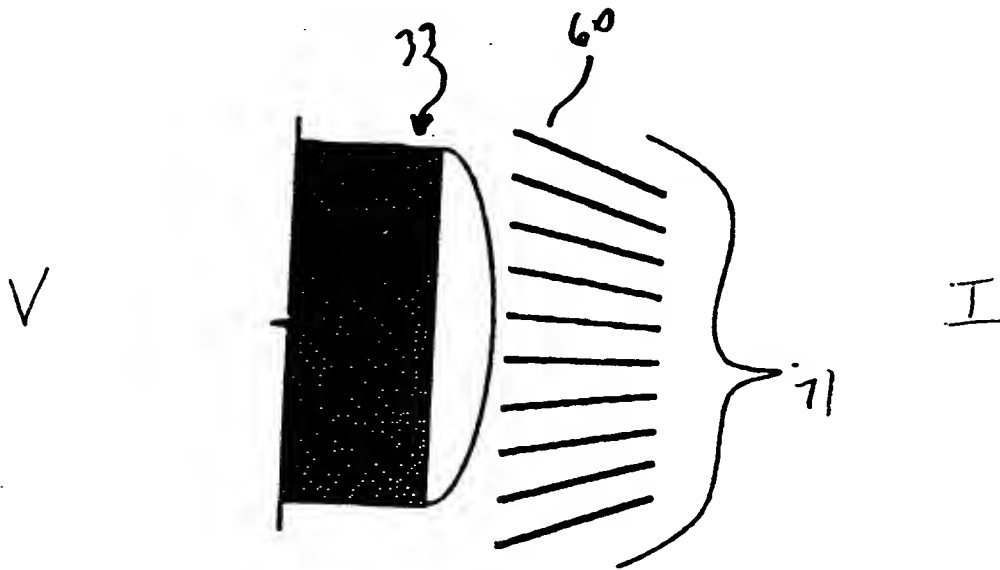
And that

[I]t would have been obvious to one skilled in the art at the time the invention was made to modify the apparatus having vanes disposed in front of a lens reflecting surface of an optical device as provided by Jones (column 5, lines 10-34) by rearranging the orientation of the vanes so that the distance between two adjacent first ends of the vanes is different from the distance defined between two adjacent second ends of the vanes as suggested by Softly for the purpose of reducing light reflection while still maintaining the wide field of view of the optical device.

Applicants respectfully traverse this rejection.

Applicants claim, claim 1, an apparatus for reducing reflection on a surface comprising: a plurality of concentric circular vanes mounted in front of the reflective surface. Each of the vanes includes a first end proximate the surface and a second end away from the surface. The first ends of the plurality of vanes are spaced apart from each other at a different distance than the second ends of the plurality of vanes are spaced apart from each other. Further, the first ends of the plurality of vanes are spaced further apart from each other than the second ends of said plurality of vanes (i.e., the vanes converge inwards as they extend away from the reflective surface). Still further, a wide field of view through the reflective surface is maintained. This embodiment is shown in Fig. 14.

According to the present invention, person or viewer ("V") is situated on the opposite side of the light reflective surface and light reflective device as shown below:

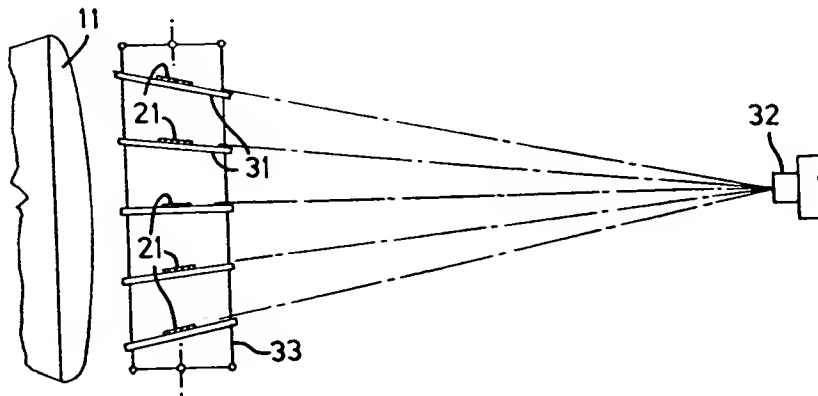


Thus, the field of view is the viewer's (V's) view through the light reflective surface and through the light reflective device (e.g. through field goggles, through the vanes of the light reflective device and into the world). The field of view is depicted in the present invention as 71 in Figures 12-14. The present invention teaches a light reflective device that is placed in front of a reflective surface. The viewer, V, is positioned opposite the reflective device and looks through the reflective surface, through the reflective device into the world. Reflection of light off the light reflective surface is minimized by the light reflective device so that individuals ("I") positioned on the same side as the reflective surface and light reflective device (opposite the viewer (V)) cannot see reflections of light off of the reflective surface (e.g. so that the individuals (I) cannot detect the viewer's (V) position by reflection of light off of his or her optical device). The light reflective device, at the same time, maintains the viewer's wide field of view through the light reflective surface into the world.

The Jones reference describes an anti-reflection technique wherein grid-like structures are placed in front of an optical device to reduce the light reflected from the

surface of the optical device. As acknowledged by the Examiner, the Jones reference fails to describe or otherwise suggest that the first ends of the concentric circular vanes are spaced further apart from each other at a different distance than the second ends of the concentric circular vanes are spaced apart from each other.

The Softly reference describes a light masking device that is placed in front of a television or similar video display screen. The light masking device intercepts light, thereby improving image contrast on the television or similar video display screen under conditions of high ambient light. According to the Softly reference, the light masking device is formed of a plurality of horizontal slats that are positioned to intercept the light while, at the same time, the horizontal slats do not block an individual's view of the television or similar video display screen. Thus, the "field of view" according to the Softly reference is the individual's view of the light reflective surface (screen) through the slats of the light reflection device (i.e. the individual's view through the slats onto the screen).



Applicant respectfully disagrees with the Examiner's statement above that "such an arrangement of the vanes as claimed is merely that of a preferred embodiment and no criticality has been disclosed." Applicants respectfully submit that the fact that the claimed element is a preferred embodiment has no bearing on patentability. The element is absent from the Jones reference. Whether the element relates to a preferred embodiment has no bearing. Further, regarding the criticality of the arrangement, in the prior Office action, the Examiner asserted that "Jones does not

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state that 1) the first ends of the vane means are arranged further from each other than the second ends of the vane means" and that "absent any showing of criticality, it would have been obvious to one skilled in the art at the time the invention was made to modify the arrangement of the ends of the vane means including the arrangement in which the first ends are closer to each other with respect to the second ends."

Applicants respectfully submit that it is well-known that the mere fact that a worker in the art **could** rearrange the parts of the reference device to meet the terms of the claims is **not** by itself sufficient to support a finding of obviousness. The prior art must provide a **motivation or reason** for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

In this case, the Jones reference provides no such motivation or reason. Further, the Examiner does not state that the Jones reference provides any motivation or reason, to make the necessary changes. The Examiner, rather, merely concludes that it would have been obvious to one skilled in the art at the time the invention was made to modify the arrangement of the ends of the vane means including the arrangement in which the first ends are closer to each other with respect to the second ends. As held by the Board of Patent Appeals and Interferences, this is not by itself sufficient to support a finding of obviousness. (See *Ex parte Chicago Rawhide Mfg. Co.*)

Further, even if the Softly reference does describes horizontal slats that can be positioned such that the distance between two adjacent first ends near the lens surface is larger than the distance between two adjacent second ends farther from the lens surface, this alone is insufficient to support a finding of obviousness. It is well-known that the mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a **m tivation or reason** for the worker in the art, without the benefit of appellant's specification, to make the

necessary changes in the reference device.” *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). Absent Applicant’s disclosure, there is absolutely **no** motivation or suggestion to combine and modify the Jones and Softly references to meet the limitations of Applicant’s claim 1.

As set out above, according to the Softly reference, the “field of view” is the individual’s view of the light reflective surface (screen) through the slats of the light reflection device (i.e. the individual’s view through the slats onto the screen). Accordingly, the slats are preferably arranged such that they provide the viewer with the least obstructed view of the screen. Thus, the slats are specifically designed to provide a viewer with an unobstructed view of the surface of the screen while improving image contrast on the screen (i.e. allowing the viewer to better see the television show or film being shown on the screen).

According to the present invention, the field of view is the viewer’s (V’s) view through the back of the light reflective surface and through the light reflective device into the world.

Thus, clearly the “field of view” of the Softly reference is a very different concept than the “field of view” of the present invention. Accordingly, it cannot be said that the Jones reference could be modified as suggested by Softly for the purpose of reducing light reflection while still maintaining the wide “field of view” of the optical device. The field of view concept of the Softly reference is the **opposite** of the field of view concept of the present invention. The field of view of the present invention is the viewer’s, V, view through the back of the light reflective surface, through the light reflective device and into the world. The field of view of the Softly reference is the view of the front of the light reflective surface (the view of the television screen). The slats of the Softly reference are specifically designed with the purpose of not only reducing reflection of light off the reflective surface (screen) but also with the purpose of providing a viewer with the clearest, best possible view of the light reflective surface (screen). Thus, there is no motivation to modify Jones to provide the slats described

by Softly since there is no reason or motivation to provide the Jones reference with slats that would enable a person (e.g. an enemy) looking at the surface a reflective surface (optical device) to better see the light reflective surface and image contrast on the reflective surface.

Thus, although the vanes of the present invention and the slats of the Softly reference are both provided to reduce reflection from a light reflective surface, the other requirements of the vanes and slats are contrary to each other. While the vanes of the present invention must provide an individual positioned **behind** the surface with a wide field of view through the back of the surface and through the vanes, the slats of the Softly reference must provide an individual positioned **in front** of the surface with a wide field of view through the slats onto the surface. The Softly reference does not describe, teach or suggest the impact of the slats on a person that may be positioned behind the surface. Rather, one would not be positioned behind (or inside of) the television or other video display screen. Thus, Applicant respectfully submits that there further would be no motivation or reasonable expectation of success in combining the Jones and Softly references such that the vanes of Jones are positioned like the slats of Softly.

Still further, as claimed in claim 1, Applicants teach a plurality of concentric circular vanes mounted in front of the reflective surface. Softly, on the other hand, described a plurality of linear vanes placed horizontally in front of a reflective surface. It cannot be said that linear vanes placed horizontally would function in the same way as Applicants' concentric circular vanes. Thus, there is further no motivation or suggestion to modify the Jones reference so as to provide concentric circular vanes positioned in the way that Softly's horizontal linear vanes are positioned. There would be absolutely no reasonable expectation of success in such a modification (a modification wherein an arrangement of concentric circular vanes is positioned like an arrangement of horizontal vertical vanes).



It is well-known that to establish a *prima facie* case of obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference(s) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143.

In this case, as acknowledged by the Examiner, the Jones reference does **not** teach or suggest all the claim limitations. Further, as set out above, there is absolutely no suggestion or motivation to modify or combine the ones and Softly references nor is there any reasonable expectation of success in such a modification or combination.

Accordingly, claim 1 is patentable over the Jones and Softly references. Claims 2-5, 7 and 11 depend from claim 1 and, likewise, are patentable over the Jones and Softly references.

*b. CLAIMS 8-9*

The Office further rejects claims 8-9 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of the prior art described at columns 2-3 and shown in figure 2 of Jones.

Applicant respectfully traverses this rejection.

Applicant claims, claim 8 as amended, a system for reducing reflection from a surface of an optical lens comprising: non-parallel vane means for limiting reflections

from said surface while maintaining a substantially wide Field of View (FOV) for said optical lens; said vane means for mounting proximate said surface of said optical lens.

The Jones reference describes a structure for use in reducing reflections from a light reflecting surface of an optical device wherein the structure utilizes a plurality of tubular elements. According to the Jones reference, the aspect ratio of the tubular elements is selected to be substantially the same as that of the optical device.

The Office states:

With regard to the arrangement of the vanes so that distance between two adjacent first ends of the vanes is different from the distance defined between two adjacent second ends of the vanes, such arrangement of the vanes is implied or suggested by Jones himself as can be seen in the embodiment described at column 5 (lines 35-52). In particular, in the embodiment provided at column 5, Jones has suggested that the vanes are arranged in inclined angles with respect to the lens reflecting surface of the optical device.

Applicants respectfully disagree. As set out in the Jones reference:

Fig. 10 depicts an anti-reflective structure used with a **non-optical device**, the term non-optical being used here in the sense that the device does not provide any optical magnification. Such a device might be a mirror or glass surface, such as a vehicle windshield 30 shown diagrammatically in Fig. 10 in a top view thereof. The vanes 31 which form the elements 32 are generally placed at various angles  $\alpha$ , other than  $90^\circ$ , with respect to the reflective surface of windshield 30 so as to follow the natural sight lines in the horizontal direction of an observer 33 looking through the windshield.

Col. 5, line 41-52.

Thus, the Jones reference only suggests the possibility of providing non-parallel vanes (i.e. the distance between two adjacent first ends of the vanes is different from the distance defined between two adjacent second ends of the vanes) for use with non-

optical devices. For such non-optical devices, as set out above, optical magnification is not provided. Rather, the vanes are placed so as to follow the natural sight lines in the horizontal direction of an observer.

The present invention, on the other hand, teaches a system for reducing reflection from a surface of an optical lens comprising: non-parallel vane means for limiting reflections from said surface while maintaining a substantially wide Field of View (FOV) for said optical lens. In accordance with the present invention, the vanes are arranged such that they are parallel to the varying view angles contained within the optic's FOV. (Page 5, lines 14-17) Thus, in accordance with the arrangement taught by the present invention, a vane 66 may block a point 62 at the top of the lens from seeing on a viewing angle 65 downwards to the bottom part of its normal FOV, there is a point 67 at the bottom of the lens that would have an unobstructed view on the view angle 65 through the tubes formed by a vane 68. Thus, in total, the arrangement of vanes will be able to maintain the full FOV of the optic to form a complete image while, at the same time, providing glint protection. (Col. 5, lines 19-26).

Applicants respectfully submit that the Jones reference does not describe, teach or suggest Applicant's system for reducing reflection from a surface of an optical lens comprising: non-parallel vane means for limiting reflections from said surface while maintaining a substantially wide Field of View (FOV) for said optical lens; said vane means for mounting proximate said surface of said optical lens. Further, there is no motivation or reason to believe that modification of the vanes of the Jones reference to a non-parallel arrangement would be successful for optical devices. Still further, there would be no motivation to modify the vanes such that the first ends are farther apart from each other than the second ends since Jones states that the vanes are placed "at various angles  $\alpha$ , other than  $90^\circ$ , with respect to the reflective surface of windshield 30 so as to follow the natural sight lines in the horizontal direction of an observer 33 looking through the windshield." As shown in Fig. 10, this would require that the first ends of the vanes are closer to each other than the second ends.

The Office further states that:

[I]t would have been obvious to one skilled in the art at the time the invention was made to modified the combined product as provided by Jones by making the vanes sufficiently long as disclosed by the mentioned prior art (col 2-3 and Fig 2) for the purpose of increasing the ability of reduction light reflection while still maintaining the field of view for the combined product.

Applicants respectfully disagree. As set out in the present specification regarding the Jones reference (U.S. Patent #4,929,055):

Reflections from the objective lens or other reflective surfaces of an optical system (glint) have long been a problem, \* \* \*

\* \* \* An existing method of reducing or eliminating such reflections is to put a honeycomb grid of tubes in front of the objective lens (as is described in U.S. Patent #4,929,055, which is fully incorporated herein by reference). The tubes in these devices have walls that are parallel to the optical axis of the device to which it is fitted.

This technique, however, is not an effective solution with wide angle FOV devices, since if the length-to-width ratio of the tubes which make up the honeycomb of parallel-walled tubes is shallow enough not to vignette the view through the optic, then the tubes are not deep enough to give affective glint protection. This means that in a battlefield situation, wide-angle FOV optical devices are vulnerable to being detected by an envoy, and thus dangerous to use.

Page 1, line 13 – page 2, line 7.

Making the vanes sufficiently long as disclosed by the mentioned prior art (col 2-3 and Fig 2) would result in the vanes being very long – as long as, or longer than, two feet for a typical 10x50 lens. (See col. 3, lines 3-4) However, such lengths are awkward and impractical and could not be used for most optical devices (e.g. one could not use binoculars, rifle scopes night vision goggles with two feet vanes extending from the ends of the devices).

Still further, contrary to the Examiner's statement, increasing the lengths of the vanes to a length sufficient to increase the ability of reduction light reflection would not maintain the field of view for the combined product. Rather, as stated in the present specification: "If deeper tubes are used, they would intrude on the FOV and vignette the image seen through the device." (page 3, lines 2-3)

Accordingly, claim 8 is patentable over the Jones reference. Claims 9 and 13-14 depend from claim 8 and, likewise, are patentable over the Jones reference.

c. *CLAIM 15*

New claim 15 claims an apparatus for reducing reflection from a surface of a wide angle Field of View (FOV) optical lens comprising: a plurality of concentric circular vanes, mounted in front of said reflective surface, each of said vanes including a first end proximate said surface, and a second end away from said surface, wherein said first ends of said plurality of vanes are spaced apart from each other at a different distance than said second ends of said plurality of vanes are spaced apart from each other, wherein a wide field of view through the reflective surface is maintained.

For the reasons set out above, claim 15 is patentable over the Jones and Softly reference.

Namely, the Jones reference describes an anti-reflection technique wherein grid-like structures are placed in front of an optical device to reduce the light reflected from the surface of the optical device. As set out above, the Jones reference fails to describe or otherwise suggest an apparatus for reducing reflection from a surface of an optical lens comprising: a plurality of concentric circular vanes, wherein said first ends of said plurality of vanes are spaced apart from each other at a different distance than said second ends of said plurality of vanes are spaced apart from each other. While Jones mentions that the vanes can be non-parallel, Jones only states that this is possible for non-optical devices, wherein optical magnification is not provided. In accordance with

Jones, the vanes can be placed so as to follow the natural sight lines in the horizontal direction of an observer. Jones does not describe or otherwise suggest that such an arrangement could be used on optical devices, wherein optical magnification is provided and wherein there are no "natural sight lines" through the device but, rather, optically magnified sight lines. Further, there is no motivation or reasonable expectation of success in making such a modification since the description in Jones is specifically targeted to non-optical devices and placement of the vanes to natural sight lines.

Thus, the Jones reference only suggests the possibility of providing non-parallel vanes (i.e. the distance between two adjacent first ends of the vanes is different from the distance defined between two adjacent second ends of the vanes) for use with non-optical devices. For such non-optical devices, as set out above, optical magnification is not provided. Rather, the vanes are placed so as to follow the natural sight lines in the horizontal direction of an observer.

Still further, Applicants respectfully submit that the Jones reference does not describe or otherwise suggest the above arrangement for wide angle Field of View (FOV) optical lens wherein a wide field of view through the lens is maintained. Rather, Jones merely describes optical devices and does not describe or otherwise suggest use of his device in connection with wide angle Field of View (FOV) optical lens. As set out in the present specification regarding the Jones reference (U.S. Patent #4,929,055):

Reflections from the objective lens or other reflective surfaces of an optical system (glint) have long been a problem, \* \* \*

\* \* \* An existing method of reducing or eliminating such reflections is to put a honeycomb grid of tubes in front of the objective lens (as is described in U.S. Patent #4,929,055, which is fully incorporated herein by reference). The tubes in these devices have walls that are parallel to the optical axis of the device to which it is fitted.

This technique, however, is not an effective solution with wide angle FOV devices, since if the length-to-width ratio of the tubes which make up the honeycomb of parallel-walled tubes is shallow enough not to vignette the

view through the optic, then the tubes are not deep enough to give affective glint protection. This means that in a battlefield situation, wide-angle FOV optical devices are vulnerable to being detected by an envoy, and thus dangerous to use.

The Softly reference does not remedy the deficiencies of the Jones reference for the same reasons set out above.

Namely, the field of view concept of the Softly reference is the **opposite** of the field of view concept of the present invention. Thus, there is no motivation to modify the Jones reference in light of Softly and there is reason to believe that modification of the Jones device in accordance with the Softly reference would successfully maintain Applicant's concept of the wide field of view through the reflective surface. Further, while Applicants teach a plurality of concentric circular vanes mounted in front of the reflective surface, Softly, describes a plurality of linear vanes placed horizontally in front of a reflective surface. It cannot be said that linear vanes placed horizontally could function in the same way as Applicants' concentric circular vanes. Thus, there is further no motivation or suggestion to modify the Jones reference so as to provide concentric circular vanes positioned in the way that Softly's horizontal linear vanes are positioned. There would be absolutely no reasonable expectation of success in such a modification.

Further, the Softly reference does not describe or otherwise suggest use of his device with an optical device, much less a wide FOV optical device. Rather, Softly merely describes the use of his device with a television screen or similar device. Thus, there is no motivation to modify the Jones reference in light of the Softly reference which does not describe or otherwise suggest optical devices.

Accordingly, claim 15 is patentable over the Jones and Softly references.

Peter W. J. Jones  
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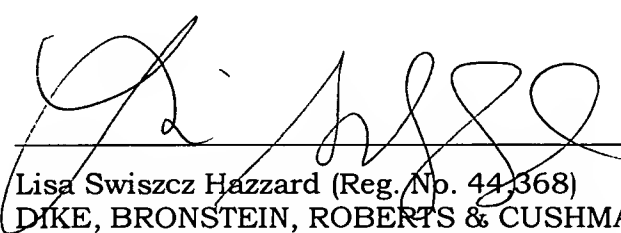
### CONCLUSION

In view of the above amendments and discussion, reconsideration and allowance of claims 1-5, 7-9, 11 and 13-15 is respectfully requested.- This case is believed to be in condition for immediate allowance. Applicant respectfully requests early consideration and allowance of the subject application.

If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

Date: 12/14/2001



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#185247



**VERSION WITH MARKINGS TO SHOW CHANGES MADE IN CLAIMS**

Please note that additions to the claims are shown underlined and deletions are shown in brackets.

1. An apparatus for reducing reflection on a surface comprising:  
a plurality of concentric circular vanes, mounted in front of said reflective surface, each of said vanes including a first end proximate said surface, and a second end away from said surface, wherein said first ends of said plurality of vanes are spaced apart from each other at a different distance than said second ends of said plurality of vanes are spaced apart from each other, and wherein said first ends of said plurality of vanes are spaced further apart from each other than said second ends of said plurality of vanes, wherein a wide field of view through the reflective surface is maintained.

How?

8. A system for reducing reflection from a surface of an optical lens comprising:  
non-parallel vane means for limiting reflections from said surface while maintaining a substantially wide Field of View (FOV) for said optical lens; said vane means for mounting proximate said surface of said optical lens; and said vane means producing tubes with a length-to width ratio greater than the length to width ratio of the FOV].

Please add the following new claims:

13. The system of claim 8, wherein the wide angle Field of View (FOV) of the optical lens is at least 40°.

14. The system of claim 8, wherein the vane means produce tubes with a length-to width ratio greater than the length to width ratio of the FOV.

15. An apparatus for reducing reflection from a surface of a wide angle Field of View (FOV) optical lens comprising:

a plurality of concentric circular vanes, mounted in front of said reflective surface, each of said vanes including a first end proximate said surface, and a second end away from said surface, wherein said first ends of said plurality of vanes are spaced apart from each other at a different distance than said second ends of said plurality of vanes are spaced apart from each other, wherein a wide field of view through the reflective surface is maintained.